SAFETY WARNINGS

The device must be installed in a place with limited access.

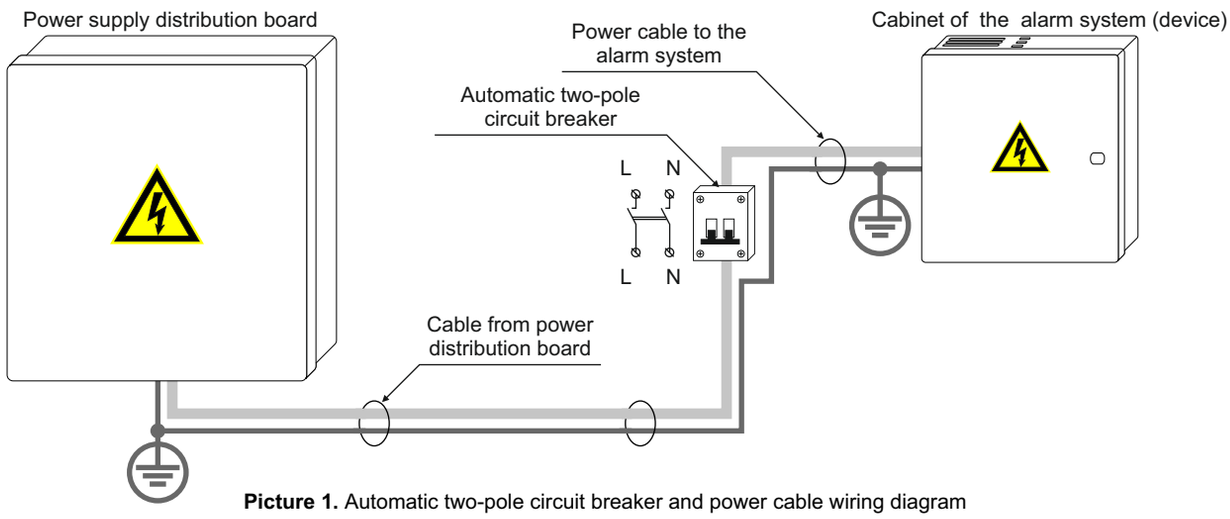
The device must be connected to an AC power supply with Protective Earthing. Cable colours mean: Phase or Live line (L) - black or brown cable, Neutral line (N) - blue cable, Protective Earth line (PE) - green cable with a vertical yellow dash. Double isolated cables with minimum cross-sectional area of 0,75 mm^2 for 230V power supply must be used.

The device uses two power supplies: main and back-up.
Main power supply: a power transformer with:
- primary winding: ~230V, 50 Hz;
- secondary winding: ~20V, 1.5A, 50Hz.

Back-up power supply: 12V, 7Ah/20HR capacity, rechargeable hermetically sealed Lead-Acid battery.

SecoLink intruder alarm system is compliant with EN 60950-1 safety requirements.
Power supplies described above must comply with the EN 60950-1 safety requirements.
All devices being connected with the alarm system (sirens, sensors, computer for programming and etc.) must comply with EN 60950-1 safety requirements.

Additional **automatic Two-Pole Circuit Breaker** should be installed in an AC electric power circuit in order to protect against over-current, short circuits and earthing faults.
The circuit breaker contact gap should be no less than 3mm, protective circuit breaker current must be in 0,5A - 2A range .
The circuit breaker should be placed close to the system's housing and should be easily accessed.



Picture 1. Automatic two-pole circuit breaker and power cable wiring diagram

The device installation and service should be performed by trained personnel with sufficient knowledge about the device and general safety requirements for work with low voltage (up to 1000V) AC power lines. In the case of a device malfunction repair works can be performed by qualified personnel only. If the system is malfunctioning, the end user should inform the qualified personnel as soon as possible. User doesn't have right to repair the system.

Before performing any work of installation or service **always** disconnect the device from power supplies in sequence as described below:
- cut off 230 V AC power line with the automatic Two-pole Circuit Breaker;
- disconnect 12V back-up battery by removing battery female plug from Control Panel male socket BAT.

Two-pole Circuit-Beaker installation on flexible cables is forbidden.

Alarm system modules comes with in-built LED indicator. LED blinks when module is powered up. An option to check is the system is powered up or not can be a press of any key on keypad. If system was powered up the keypad backlight will last for 30 seconds.

General safety requirements:
- do not touch any part of the main power supply under voltage: transformer, a fuse block, connection wires;
- it is forbidden to perform any device installation or service work during lightning;
- use batteries according to manufacturer recommendations. The use of improper battery type may cause an explosion;
- battery replacement : be sure battery terminals are isolated, battery terminals short-wiring may cause an explosion.

It is not recommended to connect the device to a fully discharged battery. To avoid system malfunction use an adequate charger to charge a new or discharged battery before connecting battery to the device.
Inoperative or expired batteries should be recycled according to the local rules or EU directives 2006/66/EC and 93/86/EEC.
Collection and separate utilization of waste battery is mandatory!

The connection to the mains supply must be made as per the local authorities rules and regulations.
The end of a stranded conductor shall not be consolidated by soft-soldering, insulated pins shall be used. Insulated pins shall be connected in a manner that they are and with remain mechanically efficient.

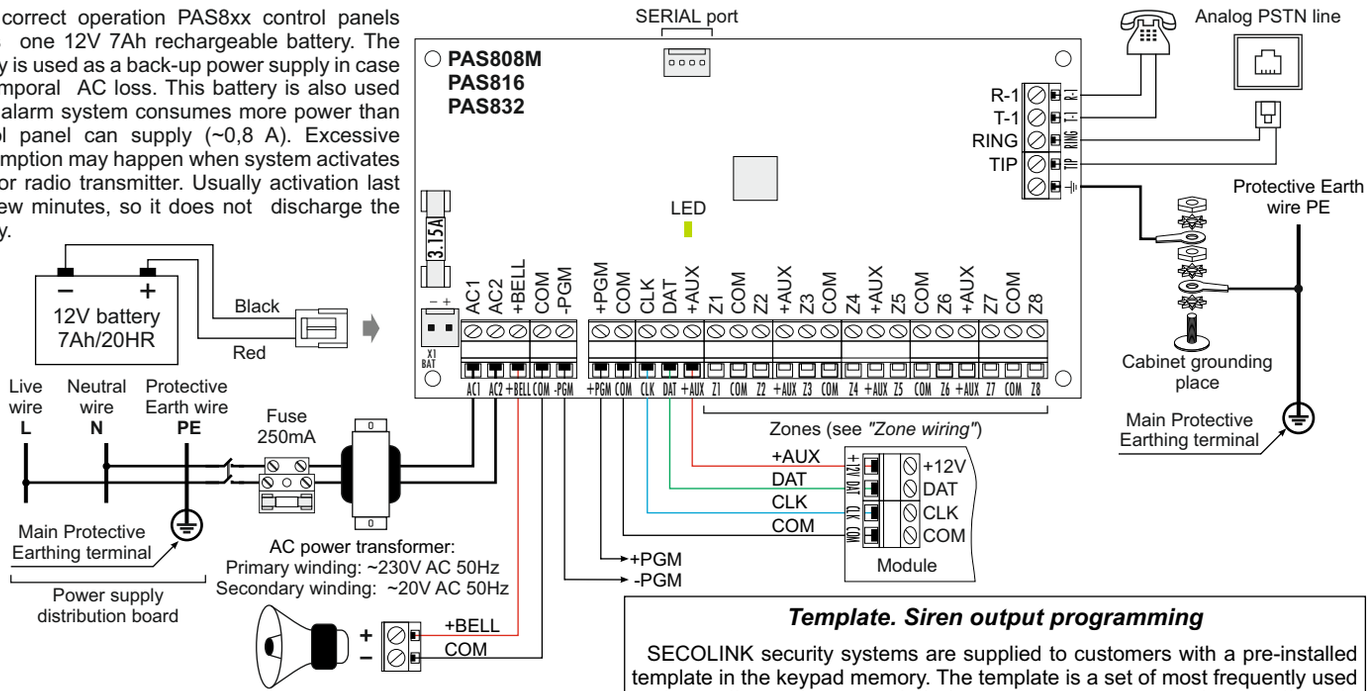
The Control Panel Terminals TIP, RING, T-1, R-1 should be connected to analog PSTN line. Connection to digital ISDN line may cause device damage.

LAN800 is designed to be used in couple with a router which is placed in the same room or premises. It's prohibited to connect LAN800 directly to Wide Area Network (MAN, WAN) or building IT infrastructure cables.

Please act according to your local rules and do not dispose of your unusable alarm system or its components with other household waste. This product utilization in EU is covered by European Directive 2002/96/EC.

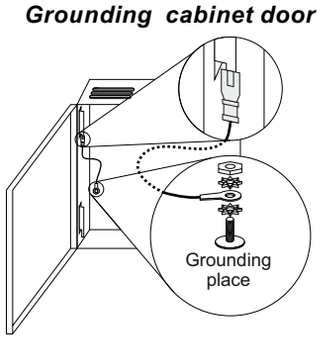
Installation of control panel

For correct operation PAS8xx control panels needs one 12V 7Ah rechargeable battery. The battery is used as a back-up power supply in case of temporal AC loss. This battery is also used when alarm system consumes more power than control panel can supply (~0,8 A). Excessive consumption may happen when system activates siren or radio transmitter. Usually activation last only few minutes, so it does not discharge the battery.



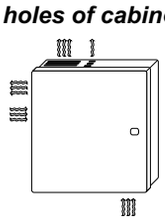
Picture 2. Wiring of power supply, PSTN line and siren without battery

Grounding cabinet door



Use cable to connect cabinet door with the cabinet grounding place.

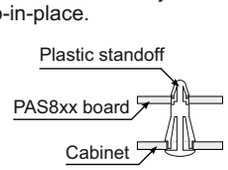
Attention! Do not cover ventilation holes of cabinet!



Leave minimum 10 cm of free space between the ventilation hole and any other surface. Heating of control panel can reduce maximum current on +AUX and +PGM.

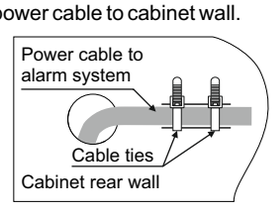
Mounting modules in cabinet

Insert standoff into cabinet mounting hole in the desired location and snap-in-place. Position circuit board mounting holes over standoffs. Press firmly on board to snap-in-place.



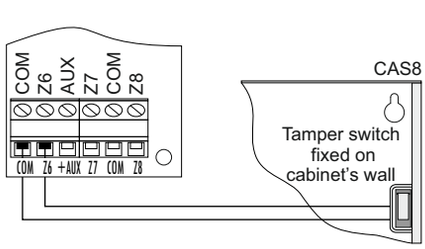
Securing power cable to cabinet

Use cable ties to secure power cable to cabinet wall.



Use a tamper switch to protect control panel

By default PAS8xx zone Z6 is set for detection of alarm system cabinet opening. Opening the cabinet when system is disarmed will make a trouble event or will trigger an alarm if system is armed. When cabinet's tamper is unused, input Z6 can be set as normal zone.



How to set by using keypad KM20Bx:

```
Service Mode:
◂System setup ▸
```

```
System setup:
◂Modules ▸
```

```
Modules:
◂Settings ▸
```

```
M00◂Use Tamper ▸
 No
```

Template. Siren output programming

SECOLINK security systems are supplied to customers with a pre-installed template in the keypad memory. The template is a set of most frequently used system settings. During *First start* procedure keypad sends these settings to other modules. When *First start* is completed the system will be set to 1 partition and 8 zones:

- Z1 is preset to be used with a entry door magnetic contact;
- Z2 - with PIR motion detector in entry/exit path;
- Z3, Z4 - for PIR detectors wiring;
- Z5 - with smoke detector;
- Z6 - for cabinet tamper switch wiring;

PGM outputs:

- +BELL (O01) is preset in the template to control a siren with no battery;
- -PGM (O02) is preset to make activation (makes "minus") of siren with back-up battery;
- +PGM (O03) is preset to make +12V power supply for smoke detectors. See page 6 - *Wiring of 4-wire smoke detector*.

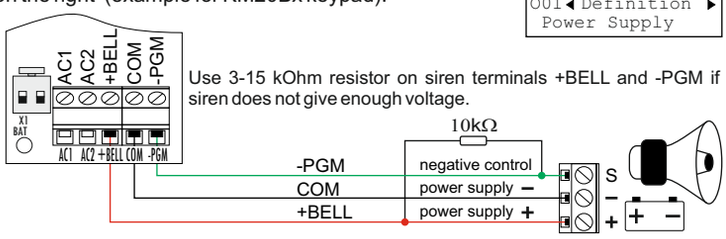
SECOLINK security systems may have different templates for different countries. Check keypad sticker for a country prefix or pre-installed template code. Example: KM20B_MY

Note: in most templates +BELL is set for sirens with no battery (picture **2**). To use the siren with back-up battery (picture **3**) you need to change +BELL (O01) definition to "Power supply". Definition changing sequence is showed on the right (example for KM20Bx keypad).

```
Service Mode:
◂System Setup ▸
```

```
System Setup:
◂PGM Outputs ▸
```

```
O01◂Definition ▸
 Power Supply
```



Picture 3. Installation of 3 wire type siren. Siren uses back-up battery

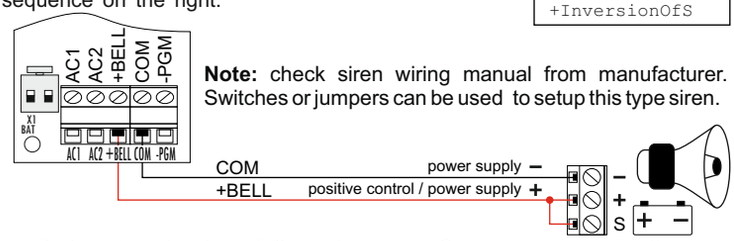
Note: in case installation uses 2 wire siren with back-up battery (picture **4**) installer needs to make changes as showed on the right. This type sirens uses back-up battery to sound alarm and makes alarm when power supply line (+BELL) do not provide power from control panel. Use ***Inversion of Status*** PGM attribute to program system for this operation. Programming sequence on the right.

```
Service Mode:
◂System Setup ▸
```

```
System Setup:
◂PGM Outputs ▸
```

```
O01◂Definition ▸
 Fire/BurgAlarm
```

```
O01◂Attributes ▸
 +InversionOfS
```



Picture 4. Installation of 2 wire type siren. Siren uses back-up battery

Electrical characteristics and additional information

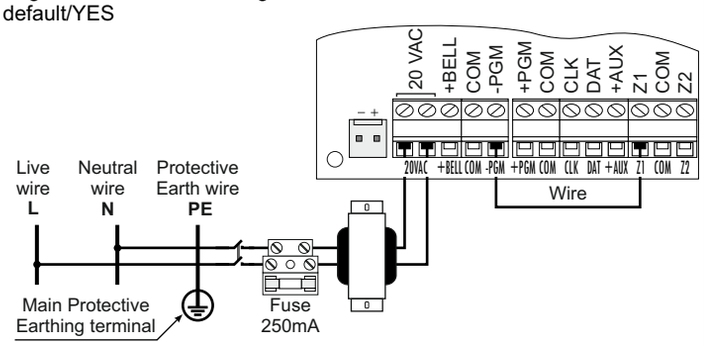
Maximum load ratings and electrical characteristics of PAS8xx control panels

Maximum long term output current of control panel: ($I_{+AUX} + I_{+BELL} + I_{+PGM} + I_{BAT.CHARGE} \leqslant I_{LONG\ TERM}$)	1,2A (PAS808M) 1,5A (PAS816, PAS832)
Maximum current out of +AUX:	+0,9 A
Maximum current out of +BELL for PAS808M:	+0,9 A
Maximum current out of +BELL for PAS816, PAS832 (new vers.):	+2,0 A
Maximum current into -PGM:	-0,05 A
Maximum current out of +PGM:	+0,9 A
Maximum battery charging current:	+0,4 A
Control panel disconnect battery when it's voltage less than:	9,5 V
Minimum AC voltage on AC1-AC2: **Note:** with ~16 V on AC1-AC2 max DC current generated by control panel power supply is 0,7A.	~16 V
Maximum AC voltage on AC1-AC2: **Note:** higher than ~22 V voltage can damage control panel.	~22 V
Maximum voltage on +AUX, +BELL, +PGM outputs:	+13,9 V
Minimum voltage on +AUX, +BELL, +PGM outputs:	+12,0 V
Maximum current of fast blowing fuse used in battery circuit:	3,15 A
Maximum current of slow blowing fuse used in primary AC:	250 mA
Maximum AC power consumption	150 mA

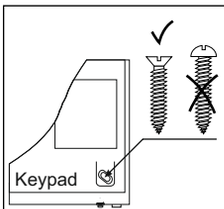
Restoring service PIN to default value

To restore default value (0000) for service PIN, follow the steps:
- disconnect control panel from 20 V AC power supply;
- disconnect control panel from back-up battery;
- make short circuit of -PGM and zone Z1;
- connect control panel to 20 V AC power supply.

Now service PIN is restored to 0000 value and system with enabled service mode. To reset user PIN follow the steps:
- do not block service by pressing ENT;
- press arrow key to navigate in menu;
- go to: Main Menu/Settings/Users/Edit Users/ enter **0000** /Reset PIN to default/YES



Keypad mounting



Use only self-tapping screws with flat (countersunk) head (3x30 PH) to mount keypad's plastic on the wall . Make sure the screw is screwed completely and screw head hides in the plastic. Other shape screws or not completely screwed screws may touch keypad electronics and cause damage of keypad.

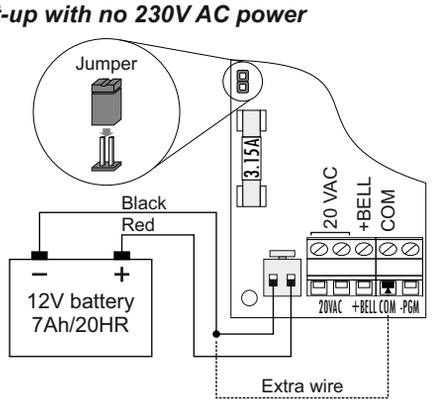
Operating temperature range:	-20°C to +55°C
Calculated life expectancy at 40°C ambient temperature: • for PAS8808M control panel: • for PAS816, PAS832 control panels:	 9 years. 12 years.
Note: ambient temperature over 40°C may reduce life expectancy. **Note:** poor ventilation of cabinet increase ambient temperature.	

System start-up with no 230V AC power

Connect 12V battery to control panel by using a BAT connector.

Use extra wire to connect (for a short time) negative pole of the battery with control panel COM terminal (for all control panels) or use the jumper to close the shown pins for 1 second (for PAS816, PAS832).

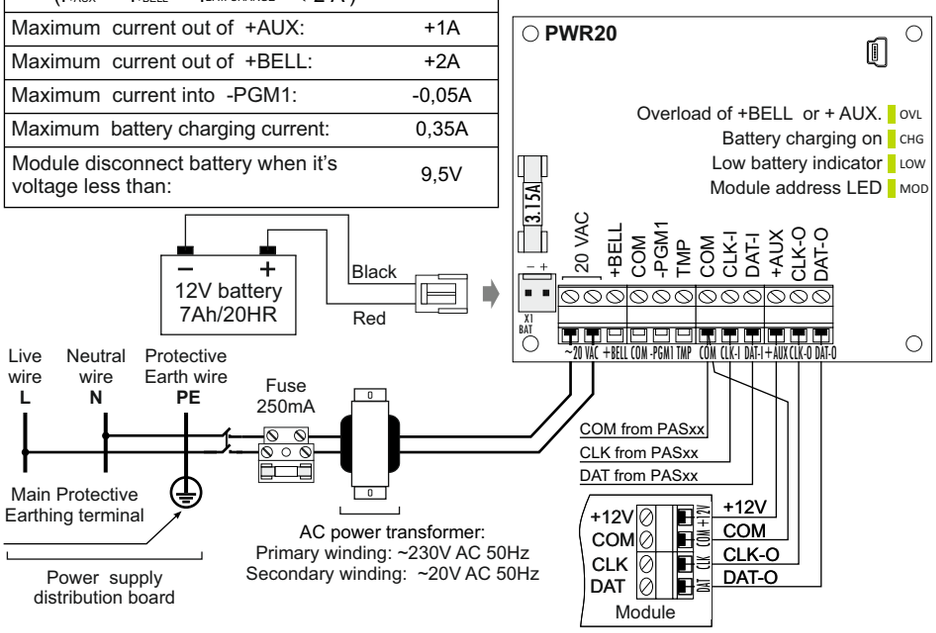
The system will start operating; however AC loss trouble will be indicated.



Wiring of modules in large or high security level system

Maximum load ratings and electrical characteristics of PWR20

Maximum long term current out of PWR20: ($I_{+AUX} + I_{+BELL} + I_{BAT.\ CHARGE} \leqslant 2$ A)	2,0A
Maximum current out of +AUX:	+1A
Maximum current out of +BELL:	+2A
Maximum current into -PGM1:	-0,05A
Maximum battery charging current:	0,35A
Module disconnect battery when it's voltage less than:	9,5V



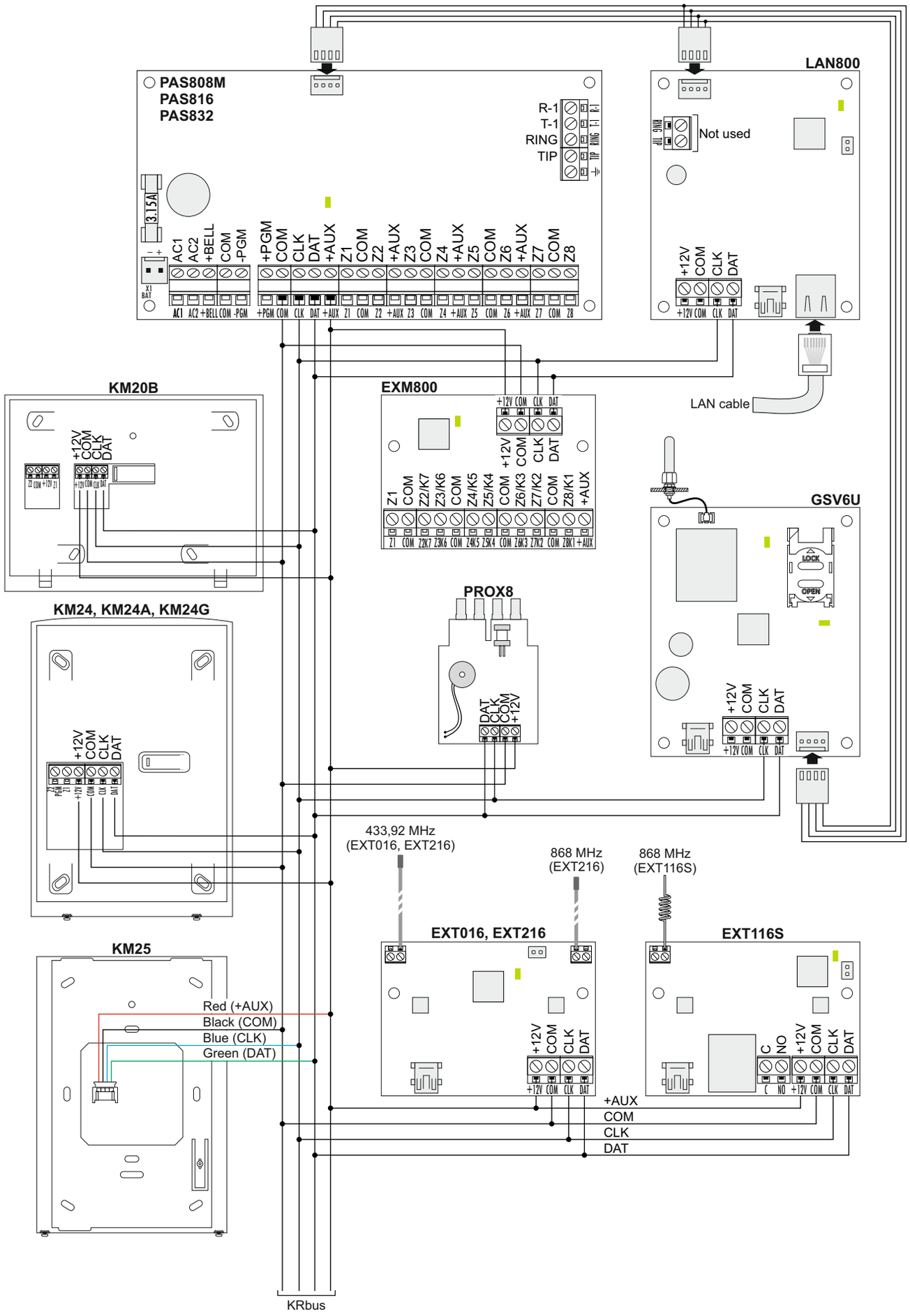
Safe wiring of outdoor siren

Use other (than control panel) transformer and rechargeable 12V 7Ah battery to power up PWR20. In case alarm system includes PWR20 it is recommended to wire an outdoor siren to the PWR20 terminals +BELL, -PGM1, COM same as shown on page 2. Failure of siren's internal battery or the siren itself will not affect performance of alarm system.

PWR20 – power supply module with bus repeater

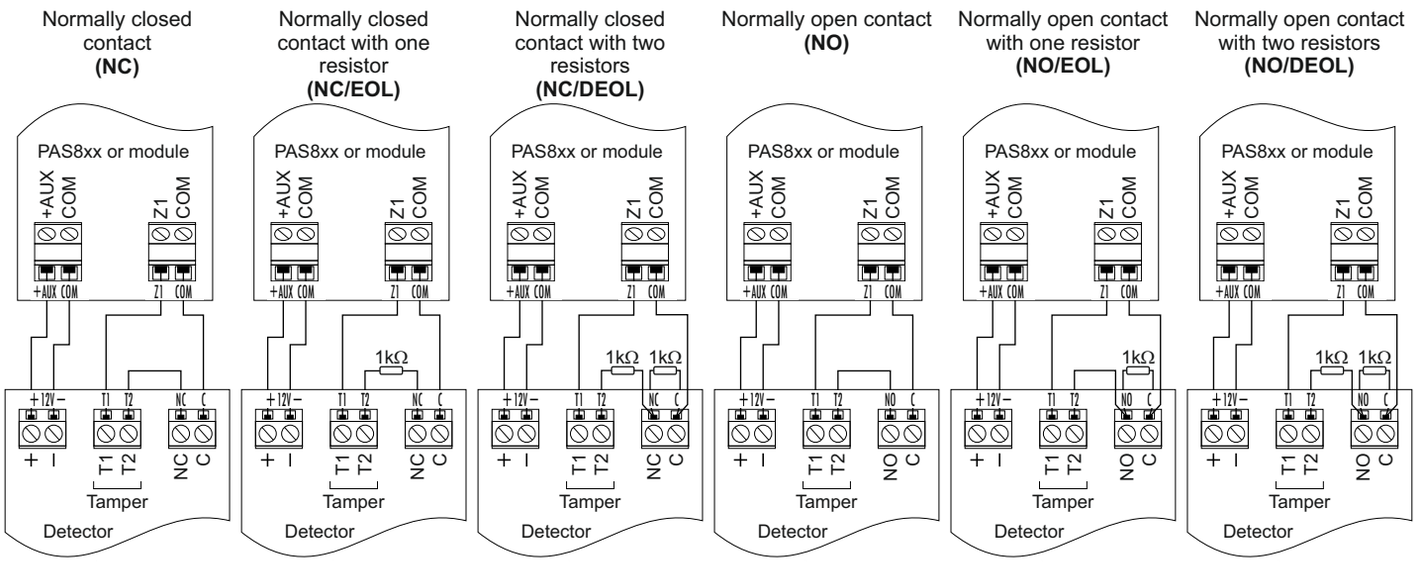
Repetition of system bus is a perfect solution when some system modules (PROX8, EXTx16) are placed outside premises or in area not protected by detectors. It is recommended to wire to repeated (by PWR20) bus all outside proximity readers or keypads located near to entry door. Attempt to make a short circuit on outside module will make no affect to system performance as PWR20 will detect the short circuit on repeated bus and will disconnect repeated bus from main bus. Terminals **CLK-I, DAT-I** are inputs for main bus, terminals **CLK-O** and **DAT-O** are outputs of repeated bus. For power supply modules must use PWR20 output **+AUX**.

Wiring of system modules

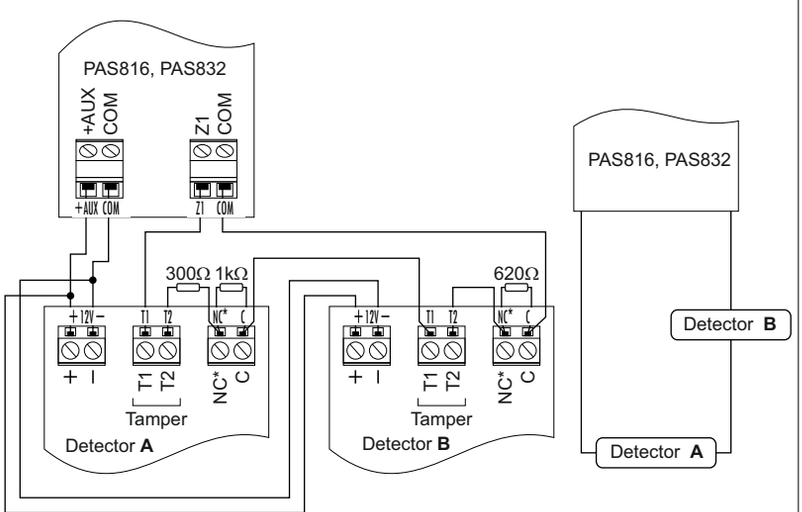


Wiring of zones

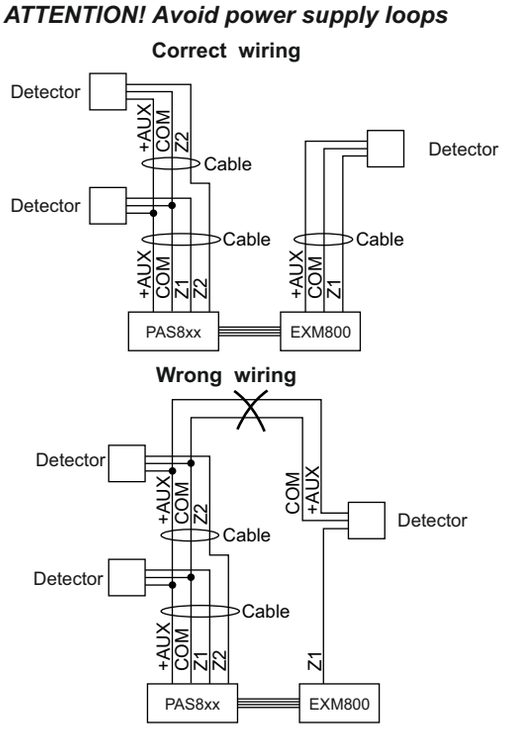
Wiring of single zones



Wiring of double zones (PAS816, PAS832 only)

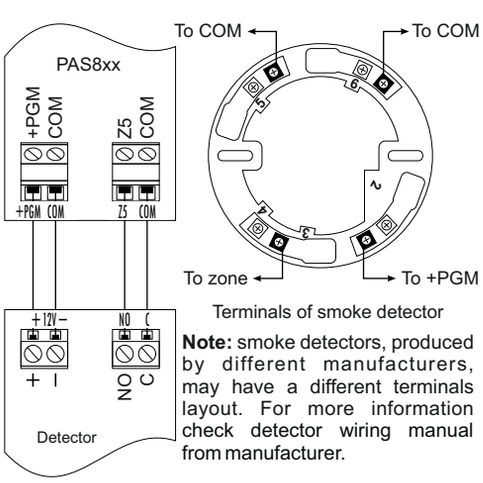


ATTENTION! Avoid power supply loops



Wiring samples

Wiring of 4-wire smoke detector

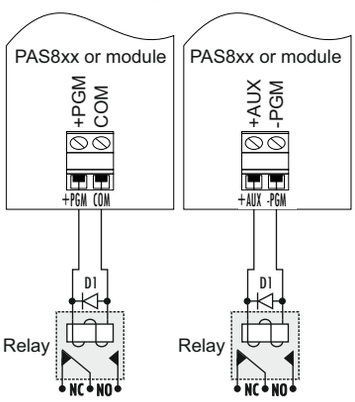


Note: smoke detectors, produced by different manufacturers, may have a different terminals layout. For more information check detector wiring manual from manufacturer.

Smoke detectors can be triggered by dust so in order to prevent false alarms it is recommended to make fire alarm verification. For the verification some system settings must be active. Below is an example for +PGM:
- "Fire verification" attribute must be assigned to fire zone. (Zone Z5 used in template as fire zone);
- fire (smoke) detector must be powered by +PGM;
- "Fire Power Supply" definition must be set for +PGM;
- zone selected to be as fire zone must be pointed as trigger source for +PGM;
- +PGM reset time (pulse length in keypad menu) must be set;
- "Detector settling time" (global time setting) must be set;
- "Fire verification time" (global time setting) must be set;

Operation: In order to check triggered fire detector, detector's power supply has to be turned OFF and turned ON again. System turn OFF +PGM for a PGM reset time. When reset time expires the system turns ON the +PGM again and waits for detector settling ("detector settling time"). Then system checks detector again by period equal to "Fire verification time". If fire detector is triggered again it means an alarm was true.

Wiring of relays

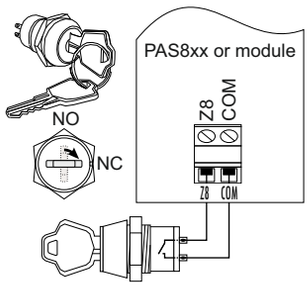


It is recommended to use diode to supress voltage surges on relay.

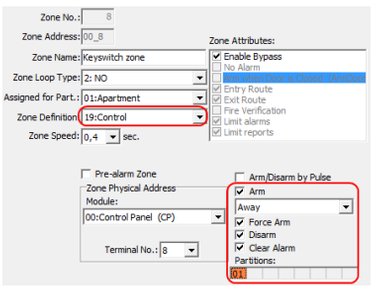
Wiring samples (continued)

Maintained Key-switch zone wiring (for PAS816, PAS832)

Wiring:

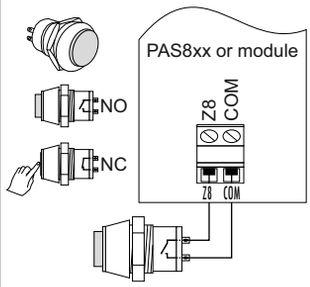


Programming (using MASCAD):

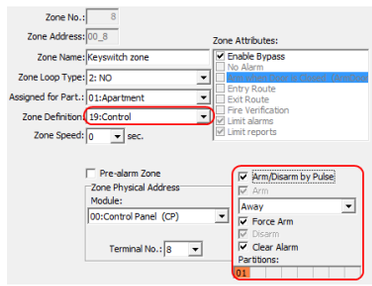


Momentary Key-switch zone wiring (for PAS816, PAS832)

Wiring:



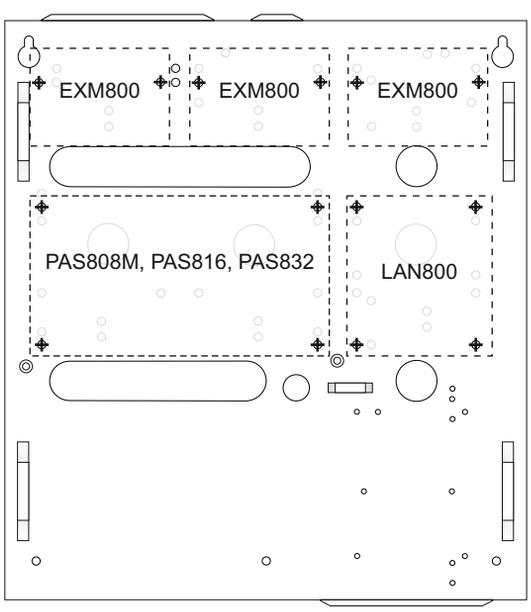
Programming (MASCAD):



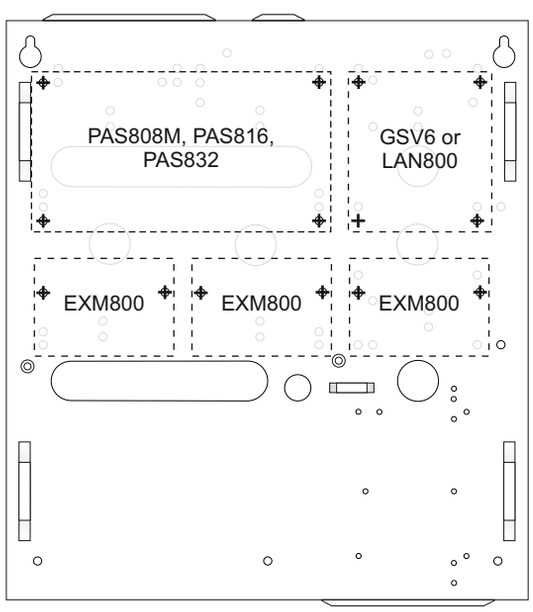
Installation of modules in CAS8 metal cabinet

Crosses and dashed lines shows the commonly used locations of the modules. The circuit board mounting holes of wireless zone expanders EXT016, EXT216 or EXT116S matches with mounting holes of EXM800, however it is recommended to install these modules outside the metal cabinet. The special plastic housing is designed for these modules.

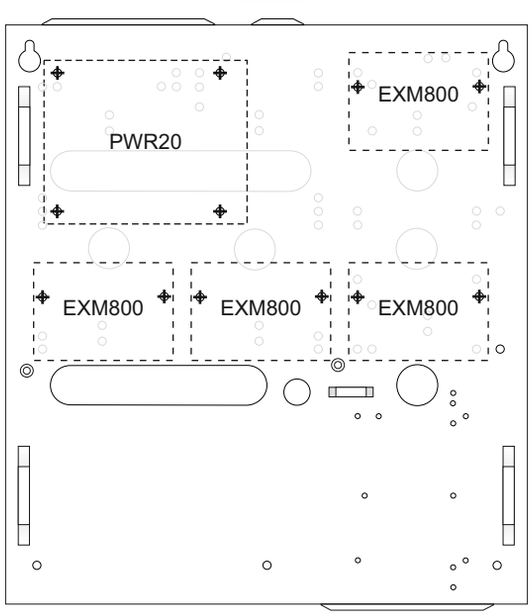
Installation of control panel, zone/PGM expansion and LAN modules



Installation of control panel, zone/PGM expansion and GSM/GPRS module or LAN modules

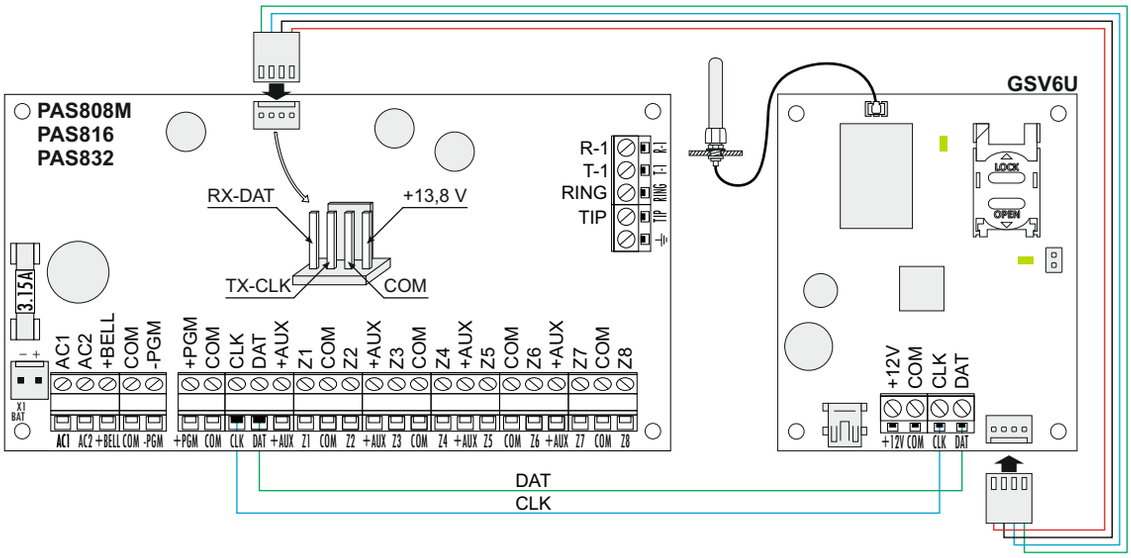


Installation of extra power supply module and zone/PGM expansion modules



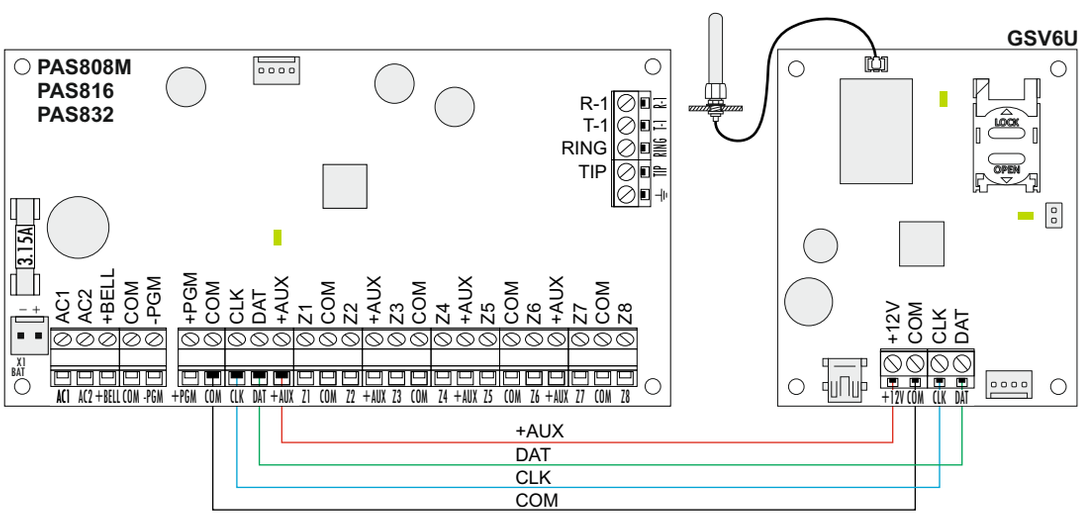
Wiring of GSV6U with control panel

This wiring method ensures, that in case of short circuit on +AUX, COM the module will continue working and all reports will be sent to central monitoring station or to end user. Avoid powering loops. Do not connect +AUX, COM if module is connected to SERIAL port.

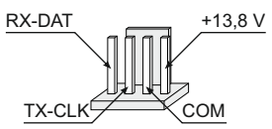


Wiring of GSV6U with control panel (optional)

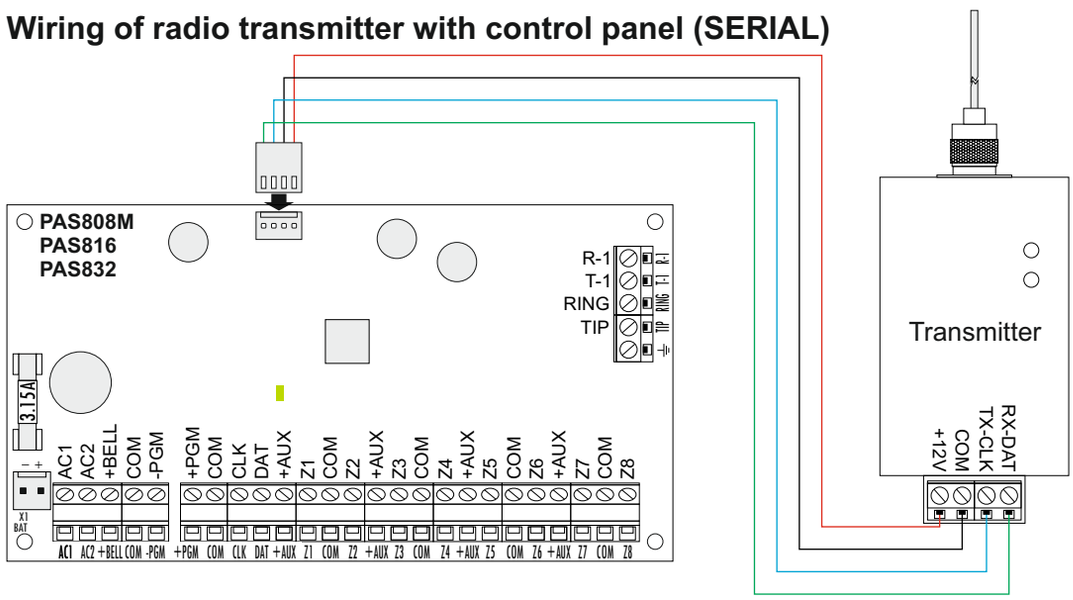
When alarm system cabinet is placed in location with poor GSM network coverage the only option is to install GSV6U module in other place. Take care about power supply wires diameter if distance between control panel and module exceeds 5 meters.



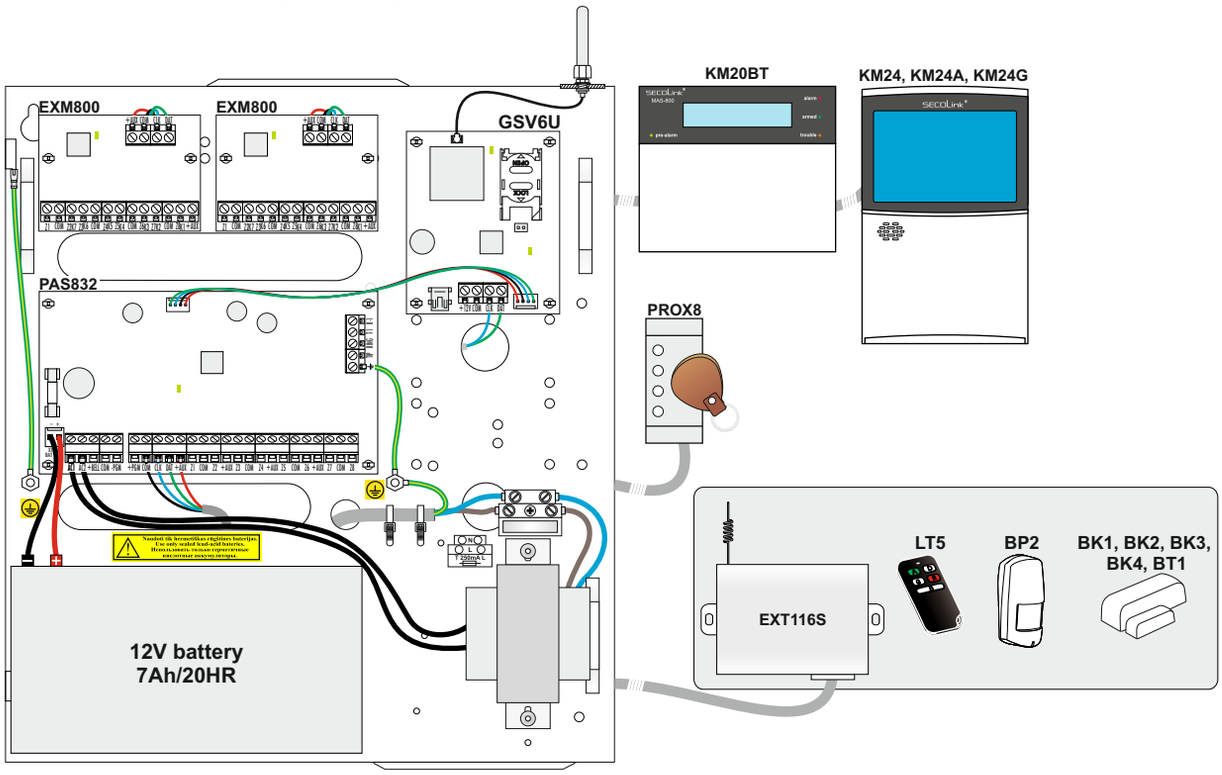
Wiring of radio transmitter with control panel (SERIAL)



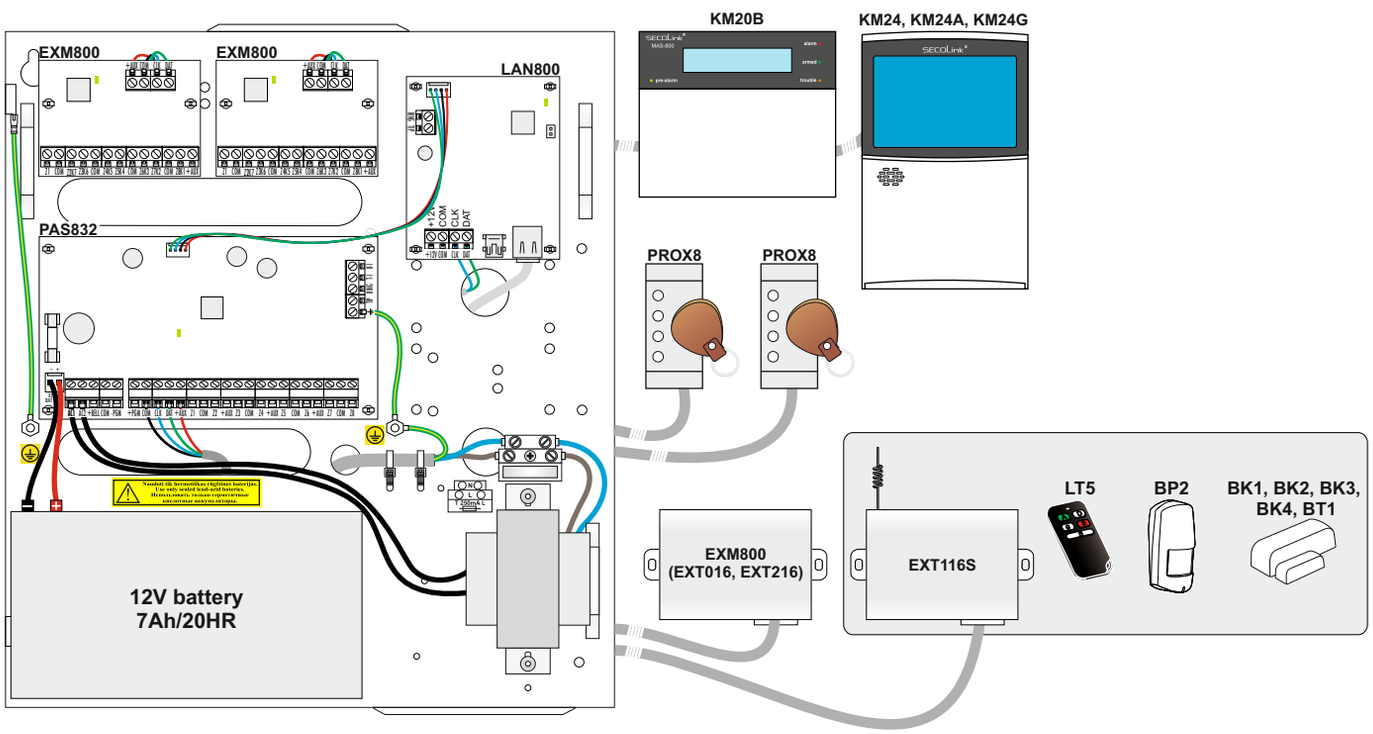
Attention! Consumed by radio transmitter short time current should not exceed 3A. Control panel supply current to this connector with not full electronic short-circuit protection. In case of long term high current PCB damage is possible.

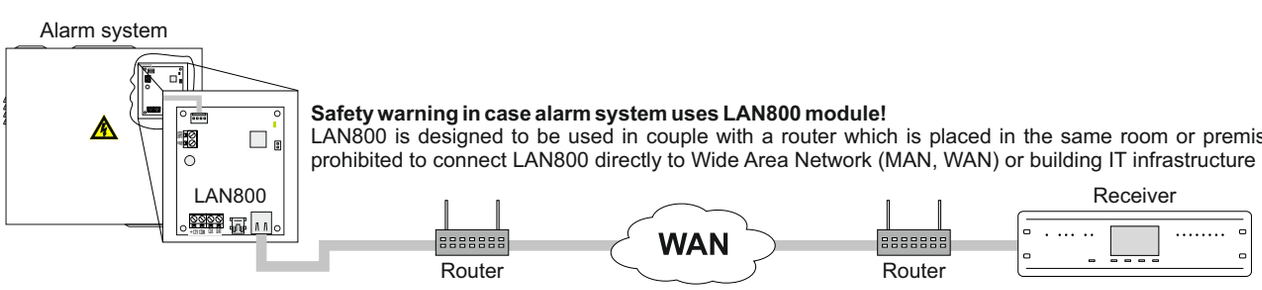


Typical system installation example - SECOLINK PAS816



Typical system installation example - SECOLINK PAS832





Safety warning in case alarm system uses LAN800 module!
LAN800 is designed to be used in couple with a router which is placed in the same room or premises. It's prohibited to connect LAN800 directly to Wide Area Network (MAN, WAN) or building IT infrastructure cables.